

WHAT IS CLAIMED IS:

1. A method of lubricating a conveyor system for transporting a container, the method comprising:

applying a lubricant composition to a surface of a belt or track of the conveyor, the lubricant composition comprising:

a polyalkylene glycol polymer or a derivative thereof; and
a fatty acid.

2. The method of claim 1, wherein the polyalkylene glycol polymer or the a derivative thereof comprises in the range of about 0.001 to about 99 wt.-% of the composition.

3. The method of claim 1, wherein the fatty acid comprises in the range of about 0.0001 to about 50 wt.-% of the composition.

4. The method of claim 1, wherein the polyalkylene glycol polymer or the a derivative thereof comprises in the range of about 0.001 to about 50 wt.-% of the composition, and the fatty acid comprises in the range of about 0.0001 to about 20 wt.-% of the composition.

5. The method of claim 1, wherein the polyalkylene glycol polymer or a derivative thereof comprises a homopolymer.

6. The method of claim 1, wherein the polyalkylene glycol polymer or a derivative thereof comprises a copolymer.

7. The method of claim 6, wherein the copolymer comprises a block copolymer.

8. The method of claim 6, wherein the copolymer comprises a random copolymer.

9. The method of claim 1, wherein the polyalkylene glycol polymer or derivative thereof comprises a polyethylene glycol polymer, polypropylene glycol polymer, or derivatives thereof.

10. The method of claim 9, wherein the polyalkylene glycol polymer comprises a homopolymer of polyethylene glycol, polypropylene glycol, or derivatives thereof.

11. The method of claim 9, wherein the polyalkylene glycol polymer comprises a copolymer of polyethylene glycol, polypropylene glycol, or derivatives thereof.

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12. The method of claim 11, wherein the copolymer comprises a block copolymer.
13. The method of claim 12, wherein the block copolymer comprises a block copolymer of ethylene oxide and propylene oxide, and has a molecular weight in the range of about 800 to 40,000.
14. The method of claim 13, wherein the ethylene oxide comprises in the range of about 10 to 80 wt-% of the copolymer.
15. The method of claim 13, wherein the block copolymer comprises polyoxyethylene sandwiched by polyoxypropylene blocks wherein ethylene oxide constitutes from about 10 to 80 wt-% of the copolymer.
16. The method of claim 11, wherein the copolymer comprises a random copolymer.
17. The method of claim 1, wherein the container is a plastic container.
18. The method of claim 1, wherein the container is a metal container.
19. The method of claim 1, wherein the container is a glass container.
20. The method of claim 1, wherein the lubricant composition is a concentrate.
21. The method of claim 1, wherein the composition lubricant composition is a lubricant solution including a solvent/diluent.
22. The method of claim 21, wherein the solvent/diluent comprises water, methanol, ethanol, propanol, or butanol, or mixtures thereof.
23. The method of claim 1, wherein the polyalkylene glycol or derivative thereof has a molecular weight in the range of about 200 to three million.
24. The method of claim 23, wherein the polyalkylene glycol or derivative thereof has a molecular weight in the range of about 200 to about 100,000.
25. The method of claim 23, wherein the polyalkylene glycol or derivative thereof has a molecular weight in the range of about 200 to about 20,000.
26. The method of claim 23, wherein the polyalkylene glycol or derivative thereof has a molecular weight in the range of about 200 to about 10,000.
27. The method of claim 1, wherein the lubricant composition is thermoplastic compatible.
28. The method of claim 27, wherein the lubricant composition is polyethylene terephthalate compatible.

29. The method of claim 1, wherein the composition has an alkalinity level of less than about 100ppm.

30. The method of claim 1, wherein the composition has an alkalinity level of less than about 50ppm.

31. The composition of claim 1, wherein the composition is a dry lubricant.

32. The composition of claim 1, wherein the composition is a non-dripping liquid lubricant.

33. The method of claim 1, wherein the composition further comprises an additional functional ingredient.

34. The method of claim 1, wherein the lubricant composition further comprises a surfactant or mixtures thereof.

35. The method of claim 1, wherein the aqueous lubricant composition further comprises a neutralizing agent.

36. The method of claim 35, wherein the neutralizing agent is selected from the group consisting of sodium hydroxide, potassium hydroxide, monoethanolamine, diethanolamine, triethanolamine, and morpholine.

37. The method of claim 1, wherein the aqueous lubricant composition further comprises hydrogen peroxide.

38. The method of claim 1, wherein the composition is compatible with ink used on the containers.

39. A method of lubricating a moving conveyor system for transporting a container, the method comprising the step of applying a lubricant composition to a surface of a belt or track of the conveyor system, the aqueous lubricant composition comprising:

(a) in the range of about 0.001 to about 99% or a polyalkylene glycol block copolymer or a derivative thereof; and

(b) in the range of about 0.0001 to about 50 wt.-% of a fatty acid.

40. A method of lubricating a moving conveyor system for transporting a container, the method comprising the step of applying a lubricant composition to a surface of a belt or track of the conveyor system, the aqueous lubricant composition comprising:

- (a) a polyalkylene glycol polymer or a derivative thereof; and
- (b) a fatty acid, wherein at least a portion of the fatty acid is a free fatty acid that has not been neutralized by an alkali neutralizing agent.

41. A method of lubricating a moving conveyor system for transporting a container, the method comprising the step of applying a lubricant composition to a surface of a belt or track of the conveyor system, the aqueous lubricant composition comprising:

(a) in the range of about 0.001 to about 99% or a polyalkylene glycol polymer or a derivative thereof; and

(b) in the range of about 0.0001 to about 50 wt.-% of a fatty acid, wherein the composition comprises 100ppm alkalinity or less.

42. A method of lubricating a moving conveyor system for transporting a container, the method comprising the step of applying an aqueous lubricant composition to a surface of a belt or track of the conveyor, the aqueous lubricant composition comprising:

fatty acid;

polyalkylene glycol polymer or a derivative thereof; and

water, wherein the polyalkylene glycol polymer or a derivative thereof is present in the composition in an amount sufficient to solubilize/emulsify at least a portion of the fatty acid.

43. A lubricating composition suitable for use in a conveyor system, the lubricating composition comprising:

a polyalkylene glycol polymer or a derivative thereof; and

a fatty acid.

44. The composition of claim 43, wherein the polyalkylene glycol polymer or the a derivative thereof comprises in the range of about 0.001 to about 99 wt.-% of the composition.

45. The composition of claim 43, wherein the fatty acid comprises in the range of about 0.0001 to about 50 wt.-% of the composition.

46. The composition of claim 43, wherein the polyalkylene glycol polymer or the a derivative thereof comprises in the range of about 0.001 to about 50 wt.-% of the composition,

and the fatty acid comprises in the range of about 0.0001 to about 20 wt.-% of the composition.

47. The composition of claim 43, wherein the polyalkylene glycol polymer or a derivative thereof comprises a homopolymer.

48. The composition of claim 43, wherein the polyalkylene glycol polymer or a derivative thereof comprises a copolymer.

49. The composition of claim 48, wherein the copolymer comprises a block copolymer.

50. The composition of claim 48, wherein the copolymer comprises a random copolymer.

51. The composition of claim 43, wherein the polyalkylene glycol polymer or derivative thereof comprises a polyethylene glycol polymer, polypropylene glycol polymer, or derivatives thereof.

52. The composition of claim 51, wherein the polyalkylene glycol polymer comprises a homopolymer of polyethylene glycol, polypropylene glycol, or derivatives thereof.

53. The composition of claim 51, wherein the polyalkylene glycol polymer comprises a copolymer of polyethylene glycol, polypropylene glycol, or derivatives thereof.

54. The composition of claim 53, wherein the copolymer comprises a block copolymer.

55. The composition of claim 54, wherein the block copolymer comprises a block copolymer of ethylene oxide and propylene oxide, and has a molecular weight in the range of about 800 to 20,000.

56. The composition of claim 55, wherein the ethylene oxide comprises in the range of about 10 to 80 wt-% of the copolymer.

57. The composition of claim 55, wherein the block copolymer comprises polyoxyethylene sandwiched by polyoxypropylene blocks wherein ethylene oxide constitutes from about 10 to 80 wt-% of the copolymer.

58. The composition of claim 53, wherein the copolymer comprises a random copolymer.

59. The composition of claim 43, wherein the container is a plastic container.

60. The composition of claim 43, wherein the container is a metal container.
61. The method of claim 43, wherein the container is a glass container.
62. The composition of claim 43, wherein the lubricant composition is a concentrate.
63. The method of claim 43, wherein the composition lubricant composition is a lubricant solution including a solvent.
64. The composition of claim 63, wherein the solvent comprises water.
65. The composition of claim 43, wherein the polyalkylene glycol or derivative thereof has a molecular weight in the range of about 200 to three million.
66. The composition of claim 65, wherein the polyalkylene glycol or derivative thereof has a molecular weight in the range of about 200 to about 100,000.
67. The composition of claim 43, wherein the lubricant composition is thermoplastic compatible.
68. The composition of claim 43, wherein the composition is dry lubricant.
69. The composition of claim 43, wherein the composition is a non-dripping liquid lubricant.
70. The composition of claim 43, wherein the composition further comprises an additional functional ingredient.
71. The composition of claim 43, wherein the lubricant composition further comprises a surfactant or mixtures thereof.
72. The composition of claim 43, wherein the lubricant composition further comprises an anionic and a nonionic surfactant.
73. The composition of claim 43, wherein the aqueous lubricant composition further comprises a neutralizing agent.
74. The composition of claim 73, wherein the neutralizing agent is selected from the group consisting of sodium hydroxide, potassium hydroxide, monoethanolamine, diethanolamine, triethanolamine, and morpholine.
75. The method of claim 43, wherein the lubricant composition is polyethylene terephthalate compatible.
76. The method of claim 1, wherein the aqueous lubricant composition further comprises hydrogen peroxide.

77. A lubricating composition suitable for use in a conveyor system, the lubricating composition comprising:

- (a) in the range of about 0.001 to about 99% or a polyalkylene glycol block copolymer or a derivative thereof; and
- (b) in the range of about 0.0001 to about 50 wt.-% of a fatty acid.

78. A lubricating composition suitable for use in a conveyor system, the lubricating composition comprising:

- (a) a polyalkylene glycol polymer or a derivative thereof; and
- (b) a fatty acid, wherein at least a portion of the fatty acid is a free fatty acid that has not been neutralized by an alkali neutralizing agent.

79. A lubricating composition suitable for use in a conveyor system, the lubricating composition comprising:

- (a) in the range of about 0.001 to about 99% or a polyalkylene glycol polymer or a derivative thereof; and
- (b) in the range of about 0.0001 to about 50 wt.-% of a fatty acid, wherein the composition comprises 100ppm alkalinity or less.

80. A lubricating composition suitable for use in a conveyor system, the lubricating composition comprising:

- fatty acid;
- polyalkylene glycol polymer or a derivative thereof; and
- water, wherein the polyalkylene glycol polymer or a derivative thereof is present in the composition in an amount sufficient to solubilize/emulsify at least a portion of the fatty acid.

81. A method of making a lubricant composition for a conveyor system for transporting a container, the method comprising:

- providing a first component of the lubricant composition including a polyalkylene glycol polymer or a derivative thereof;

providing a second component of the lubricant composition including a fatty acid; and
admixing the first component and the second component to form the lubricant
composition.

82. The method of claim 81, wherein the admixing step occurs just prior to the use
of the lubricant composition.